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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/589,573 | 06/07/2000 | Michael C. Lewis | 945P/BP1413 | 1314 |

7590 04/02/2004

Sawyer Law Group LLP
P O Box 51418
Palo Alto, CA 94303

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| EXAMINER |
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NGUYEN, KIMBINH T

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| ART UNIT | PAPER NUMBER |
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2671

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/589,573

Applicant(s)

LEWIS, MICHAEL C.

Examiner

Kimbinh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/09/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-8,10-12,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8,10-12,14,15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The request filed on 10/9/02 for a Request for Continued Examination (RCE) under 37 CFR 1.114 is acceptable.
2. Claims 1-3, 5-8, 10-12, 14 and 15 are pending in the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (4,918,626) in view of Foran et al. (5,684,939).

Claim 1, Watkins et al. discloses a) determining if a portion of one object intersects a current position of the plurality of positions and providing an output if the portion intersects the current position (the edge 18 constitutes an intersection between the polygons 10 and 12; fig. 1; col. 4, lines 11-19); b) providing a mask (a small triangle 16) for the position if the position intersects the current position, the mask indicating an extent to one portion occupies the area of the current position (the base of the small triangle 16 extends between corners 20 and 22 and defines an edge 18 between the polygons 10 and 12; col. 3, lines 38-43); Watkins teaches the base of the small triangle 16 extends between corners 20 and 22 and defines an edge 18 (implicit teaching or suggesting a mask area, because the 3D edge 18 transformed to a 2D edge 18a (defined by pixels) which tends to appear as smooth, straight line of demarcation and

further divided into subpixels to accomplish an antialiased display; col. 4, lines 13-19, col. 5, lines 1-10) and does not teach the mask indicating an extent of polygon coverage within each pixel; however, Foran et al. clearly discloses the mask indicating an extent to one portion occupies the area of the current position (col. 15, lines 57-59), using the mask to provide antialiasing for the portion at the current position (col. 15, line 52 through col. 16, line 15); repeating steps (a) -(c) for each remaining object at the current position; d) repeating steps a) - e) for remaining position of the plurality of positions at step (d) is performed for the current position; thereby allowing the graphical image to be rendered position by position; and wherein each of the plurality of positions is a pixel and wherein the current position is a current pixel (update the color value assigned to a pixel based on changes to the pixel's coverage) on the display (based on the pixel screen coordinate) (col. 15, lines 60-66). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a supersample coverage mask taught by Foran's teaching into an antialiasing system of Watkins for providing an edge antialiasing, because it would reduce artifacts by smoothing the appearance of the displayed image and/or increasing the spatial frequency characteristics of the display are known as "antialiasing" techniques (col. 1, lines 31-35).

Claim 2, Watkins discloses using at least one mask to blend information relating to at least one portion of the subareas (col. 9, lines 56-65).

Claim 10, the rationale provided in the rejection of claim 1 is incorporated herein. In addition, Watkins discloses display a plurality of positions, the position having an area (col. 4, lines 15-46); Watkins does not teach a processor; however, Foran discloses a processor coupled with the display, an interpolator coupled with the processor (figs. 4a, 4b); objects are rendered by the interpolator and the mask position by position in raster order (raster subsystem; fig. 4a). It would have been obvious to one of ordinary skill in

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the art to incorporate the image processor system taught by Foran into the edge antialiasing of Watkins system to display and output data in a raster order, because using raster scan order, it would improve in processing graphics data, develop antialiased image data for display on a raster scanned display (abstract).

5. Claims 3, 5-8, 11, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (4,918,626) in view of Foran et al. (5,684,939) and further in view of Kuchkuda et al. (5,872,902).

Claim 3, Watkins does not teach summing and dividing pixel areas; however, Kuchkuda et al. discloses summing the information of subareas to provide a resultant (adding the contribution from each image component); dividing the resultant by the number of subareas (col. 5, lines 11-18). It would have been obvious to one of ordinary skill in the art to incorporate the steps of adding, subtracting, and dividing pixel area taught by Kuchkuda into the edge antialiasing of Watkins' method, because it could improve a method for rendering of fractional pixels for anti-aliasing and pixel blending technique by calculating pixels of complex coverage areas (col. 4, lines 48-54). In addition, **Claim 5**, Kuchkuda et al. discloses f) removing the portion if the portion is obstructed (col. 16, line 52). **Claim 6**, Kuchkuda et al discloses g) sorting each portion based on the z-value (col. 18, lines 2-5).

Claims 7 and 8, Watkins discloses repeating steps a) through c) (col. 2, lines 16-19) and Kuchkuda discloses steps f) through g) for each object (col. 16, lines 50-53) and for the positions.

Claim 11, which is an apparatus claim comprising the claimed element corresponding to the claim 2, and is rejected on the same basis set forth in claim 2.

Claim 12, which is an apparatus claim comprising the claimed element corresponding to the claim 3, and is rejected on the same basis set forth in claim 3.

Claim 14, which is an apparatus claim comprising the claimed element corresponding to the claim 6, and is rejected on the same basis set forth in claim 6.

Claim 15, Watkins does not teach a removal unit; however, Foran discloses a removal unit coupled with the processor and interpolator (fig. 4b), in response to the output and without determining a precise axial position of the portion, the obstructed object identifies the portion is visually obstructed and removes the portion is obstructed (col. 9, lines 1-10); and Kuchkuda discloses sorting the portion based on the z value (col. 18, lines 2-5). It would have been obvious to one of ordinary skill in the art to incorporate sorting the portion based on the z value taught by Kuchkuda into the edge antialiasing of Watkins' method, because applying hidden surface removal and z sorting based on z value that could provide proper edge antialiasing against objects farther from the viewer (col. 5, lines 63-64).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kimbinh Nguyen** whose telephone number is **(703) 305-9683**. The examiner can normally be reached **(Monday- Thursday from 7:00 AM to 4:30 PM and alternate Fridays from 7:00 AM to 3:30 PM)**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

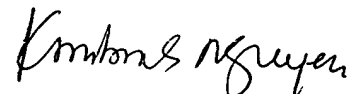
Or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Part II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the Technology Center 2600 Customer Service Office
whose telephone number is (703) 306-0377.

March 26, 2004



Kimbinh Nguyen

Patent Examiner AU 2671